

BIOGRAPHICAL DETAILS FOR SPEAKERS

SIR ARVI PARBO AC FTS

Chairman, Western Mining Corporation Holdings Limited
 President, Australian Academy of Technological Sciences and Engineering

Sir Arvi Parbo was born in Tallinn, Estonia, on 10 February 1926, and received his early education there and in Germany. After attending the Clausthal Mining Academy in Germany from 1946 to 1948 he emigrated to Australia in 1949.

He married Saima Soots on 4 April 1953, and has one daughter and two sons.

He graduated from the University of Adelaide with a Bachelor of Engineering Degree with First Class Honours in 1955 and is a Chartered Engineer.

Sir Arvi joined Western Mining Corporation as an Underground Surveyor at Bullfinch, Western Australia in April 1956, and served as Underground Manager, Nevoria Mine, from 1958 to 1960.

He held the position of Technical Assistant to the Managing Director from 1960 to 1964 in Melbourne, and returned to Western Australia in 1964 as the company's Deputy General Superintendent. Returning to Melbourne in February 1968, he was appointed General Manager and became a Director in September 1970.

He was appointed Deputy Managing Director in May 1971, and became Managing Director in November 1971.

In October 1974, Sir Arvi was appointed Chairman and Managing Director of Western Mining Corporation Limited. In June, 1986, he relinquished the position of Managing Director and became executive Chairman. In December 1990, he retired as an executive but was appointed non-executive Chairman.

In August 1987, Sir Arvi was appointed a Director of the Broken Hill Proprietary Company Limited and was appointed Chairman in May 1989, until retirement in May 1992.

Sir Arvi was appointed Chairman of Alcoa of Australia Limited in February 1978, Chairman of Munich Reinsurance Company of Australia Limited in May 1984, and Chairman of Zurich Australian Insurance Group in March 1985. He is also a Director of the Aluminum Company of America, Hoechst Australian Investments, and Sara Lee Corporation, and a Member of the Chase International Advisory Committee.

In May 1989, Deakin University made Sir Arvi an Honorary Doctor of Science. In June 1989, Monash University awarded him an Honorary Doctor of Engineering, and in August of the same

year, Curtin University of Technology appointed Sir Arvi an Honorary Doctor of Science. In March 1991, in the Silver Jubilee year of Flinders University, Sir Arvi was appointed an Honorary Doctor of the University.

He was made a Knight Bachelor for services to industry in January 1978, and was awarded the Commander's Cross of the Order of Merit of the Federal Republic of Germany in 1979. In November 1990, Sir Arvi was awarded the Grand Cordon of the Order of the Sacred Treasure of His Majesty the Emperor of Japan. On Australia Day 1991, the National Australia Day Council honoured Sir Arvi with an award as an Australian Achiever for 1990. In June 1993, Sir Arvi was made a Companion of the Order of Australia.

PROFESSOR ADRIENNE E. CLARKE AO FTS FAA

Born in Melbourne in 1938. Professor Adrienne Clarke was a part-time Member of the former CSIRO Executive. She became a Member of the CSIRO Board at its establishment in December 1986. She has been Chairman of CSIRO since December 1991.

Professor Clarke is Director of the Plant Cell Biology Research Centre at the University of Melbourne.

Professor Clarke was appointed Officer in the General Division of the Order of Australia in 1991. She is a Member of the Scientific Advisory Board of the Friedrich Meischer Institute (Switzerland) and is a Fellow of the Australian Academy of Technological Sciences and Engineering and a Fellow of the Australian Academy of Science.

Professor Clarke received her tertiary education at the University of Melbourne and her post-doctoral education at Baylor University, Houston and the University of Michigan, USA. She has held positions on the academic teaching staff of the University of Auckland, New Zealand, as well as the University of Melbourne, where she was appointed to a personal Chair in Botany in 1985. Her research work has been in the field of cellular recognition in plants, particularly in interactions controlling fertilisation and pathogenesis. This field also includes the chemistry of complex carbohydrates found in plants.

PROFESSOR IAN LOWE

Ian Lowe is a Professor and Head of the School of Science at Griffith University, where he was also from 1980 to 1992 Director of the Science Policy Research Centre. He holds a Bachelor of Science from the University of New South Wales

and a Doctor of Philosophy from the University of York.

Professor Lowe's principal research interests are in the broad area of policy decisions influencing use of science and technology, especially in the fields of energy and environment. He is the author or the co-author of four books, 10 Open University books, 20 book chapters and more than 300 other publications or conference papers. He also writes regular columns for several publications, as well as contributing frequently to radio and TV programmes.

From 1983 to 1989 Professor Lowe was a member of the National Energy Research, Development and Demonstration Council, chairing its Standing Committee on Social, Economic and Environmental Issues. He spent most of 1988 on secondment from Griffith University as Acting Director of the Commission for the Future. He is a member of the Pulp and Paper Research Board, the Advisory Committee of the Australian Road Research Board, the Queensland government's Alternative Energy Advisory Group and a Working Party reporting to the Australian Science and Technology Council on future research strategies. He is a member of the Steering Committee overseeing the corporatisation of the Queensland electricity industry, a member of the advisory committee constituted by the Minister for Immigration and Ethnic Affairs to prepare the Australian response to the 1994 World Population conference, and a member of the Bureau of Immigration and Population Research Advisory Committee. He chairs the Australian government's State of the Environment Advisory Council and the Queensland Health Promotion Council. He has conducted recent consultancies for all three levels of government.

Professor Lowe is active in a wide range of community groups, especially in the areas of consumer interests and environment issues. He chairs the Queensland Conservation Council and the Queensland Consumers' Association, as well as being Deputy Chair of the Council of the Australian Consumers' Association. At the invitation of the ABC, he delivered the 1991 Boyer Lectures in association with Professor Fay Gale, Vice-Chancellor of the University of Western Australia. Professor Lowe was named Humanist of the Year in 1988.

DR LAURIE HAMMOND

Dr Laurie Hammond's research career has been as a marine ecologist, working in the West Indies, Australia and the Pacific on nearshore and con-

tinental shelf/slope systems, particularly coral reefs. Much of his research was at the interface of biology with chemistry, geology and physical oceanography.

Dr Hammond is now Chief Executive of the Foundation for Research, Science and Technology in New Zealand, as a consequence of his interest in the management of research and, particularly, the management of public investment in research and innovation. New Zealand's bold reform of its public administration is another reason he took his current position, because the restructured New Zealand science system is now undergoing a striking transformation, which includes a commitment from government for major funding growth over the next decade and a half.

The Foundation is the major public funder of research, science and technology in New Zealand, managing ca. \$310M or about two-thirds of the government's investment through schemes that cover basic research through to industrial innovation. It also provides contestable, independent policy advice, grounded in its day-to-day experience of science providers and users.

In the last few years Dr Hammond has contributed to international debate about management of national research and innovation systems, through interactions with agencies in North America, Europe and Asia. He also retains an involvement in research and scholarship, through studies of science, art and society.

Education:

- 1990—Master of Business Administration, University of Melbourne
- 1979—Doctor of Philosophy, University of West Indies
- 1973—Bachelor of Science (Hons), James Cook University

PROFESSOR MICHAEL G. PITMAN OBE FAA

Current position: Chief Scientist, Department of the Prime Minister and Cabinet

The Chief Scientist provides advice to the Prime Minister and to the Minister Assisting the Prime Minister on Science on issues related to science and technology, and is Executive Officer, and a Member, of the Prime Minister's Science and Engineering Council. The Chief Scientist is Chair of the Coordination Committee on Science and Technology; Chair of the Cooperative Research Centres Committee and a member of the Australian Science and Technology Council.

Michael Pitman was born in Bristol in 1933 and educated at Colston's School, Bristol. He was a scholar at Sidney Sussex College, Cambridge and took Natural Science Tripos with Botany in Part II. He was a Fellow at St John's College from 1959–1962. In 1962 he went to the University of Adelaide as Lecturer in Botany and in 1966 was appointed to the Chair of Biology in Plant Physiology at the University of Sydney, a position he held to 1983 when he was appointed Director of the Institute of Biological Resources in CSIRO. During 1987 he was Deputy to the Chief Executive in CSIRO. He was appointed Chief Science Adviser in the Department of Industry, Technology and Commerce from 1988–1992. He was elected to the Australian Academy of Science in 1981.

He has served on various Boards and Committees concerned with science and technology and with marine science in Australia. He has been Chairman of the Trusts of the Australian Museum and of the Royal Botanical Gardens, Sydney.

Michael Pitman is an Emeritus Professor of the University of Sydney.

MR PETER J. LAVER FTS

Biographical details

Corporate General Manager, External Affairs, Broken Hill Proprietary Co. Ltd

This function involves BHP's corporate Government, Community and Public Affairs, Economic Affairs, International Business and Environmental Affairs.

Previous positions have been:

Corporate General Manager Technology & Development (1990–1992)

General Manager Transport (1987–1989)

General Manager BHP Steel International (1985–1987)

General Manager Operations—Steel Division (1982–1985)

General Manager Mt Newman Mining (W.A.) (1981–1982)

(Prior to 1981 Mr Laver held several operational management positions located at various BHP sites.)

Current representations include:

Chair National Board of Employment, Education and Training

Chairman—Energy Research & Development Corporation

Chairman Koppers Australia Pty Ltd

Director:

Continental Carbon (Australia) Pty Ltd
Australian Centre for Innovation and International Competitiveness (ACIIC)
University of Sydney
Strategic Industry Research Foundation
Australian International Education Foundation Council

Member:

Fellow Australian Academy of Technological Sciences & Engineering
Fellow Institute of Engineers (Aust)
Fellow Australian Institute of Mining & Metallurgy
Member Institute of Metal & Materials (Aust)

Former positions include:

Council Member Australian Maritime College (1987–1990)

President Institute of Metals and Materials Australasia Ltd (1988–1989)

Member Australian Manufacturing Council (1984–1988)

Chairman Basics Metals Industry Council (1984–1988)

Director Australia Wool Research & Development Corporation (1990–1993)

Deputy Chair Australian Science & Technology Council (ASTEC) (1984–1994)

Born in Melbourne 1940, educated at Carey Grammar and Melbourne University, graduating in Metallurgical Engineering. Undertook advanced Management Programme of Harvard University—1984.

Married, with two daughters.

SIR GUSTAV NOSSAL AC FRS FAA

Gustav Nossal was born in Bad Ischl, Austria, in 1931, and came to Australia with his family in 1939. He studied Medicine at the University of Sydney and, after two years' residency at Royal Prince Alfred Hospital, moved to Melbourne to work as a Research Fellow at the Walter and Eliza Hall Institute of Medical Research, leading to a Doctor of Philosophy Degree. Apart from two years as Assistant Professor of Genetics at Stanford University, one year at the Pasteur Institute in Paris, and one year as a Special Consultant to the World Health Organization, all his research career has been at the Hall Institute, of which he became Director in 1965. He is also Professor of Medical Biology at the University of Melbourne.

Professor Nossal's research is in fundamental immunology, and he has written five books and 460 scientific articles in this and related fields. His eminence in immunology has been recognised by his election as President (1986-1989) of the 25 000-member world body of immunology, the International Union of Immunological Societies. He is also interested in the interface between science and society, well illustrated by his Presidency of the Australian Academy of Science, his last two books *Medical Science and Human Goals* and *Reshaping Life: Key Issues in Genetic Engineering*, and his membership of the Prime Minister's Science and Engineering Council. He was a member of the Board of CSIRO from 1987-1994. As a sign of his commitment to public health and preventive medicine, he is Chairman of the Victorian Health Promotion Foundation. Professor Nossal's work in the field of international health is carried out in collaboration with the World Health Organization, where he chairs the committee overseeing the Global Programme on Vaccines.

Professor Nossal was knighted in 1977 and made a Companion of the Order of Australia in 1989. He has received numerous other honours from Australia, the United Kingdom, the United States, the Federal Republic of Germany, France, India, Austria, Israel, Mexico and Poland. Amongst the most significant are Fellow of The Royal Society of London, Foreign Associate of the US National Academy of Sciences, Member of the Academie des Sciences, France, the Albert Einstein World Award of Science, the Emil von Behring Prize, the Rabbi Shai Shacknai Prize, and 75 named lectureships in nine countries.

Professor Nossal is also involved in charitable work as Chairman of The Felton Bequests' Committee; and in the business community as a Director of CRA Limited.

LIST OF THOSE ATTENDING

- Mr Ian Anderson
 Professor Warwick Anderson, Baker Medical Research Institute
 Ms Kerry Angwin, Business Victoria, Department of Business & Employment
 Dr Neil Arehbold, Councillor RSV
 Dr David Baker-Gabb
 Dr Brett Bateup
 Dr Tom Biegler, CSIRO
 Professor Herb Bolotin, Department of Physics, Melbourne University
 Professor Willem Bouma, CSIRO Division of Atmospheric Research
 Dr Bill Briggs, Councillor RSV
 Dr David Brockway, CRC Power Generation
 Professor A. W. Burgess, Ludwig Institute for Cancer Research
 Mr Ken Buxton, Australian Computing & Communications Institute
 Dr John Carnie, Manager, Infectious Diseases, Health Protection Section, Public Health Branch, Department of Health & Community Services
 Professor Bill Charters, Dean of Engineering, University of Melbourne
 Professor Brian Cherry, Associate Dean, Research & Development, Faculty of Engineering, Monash University
 Professor Adrienne Clarke AO FTS FAA, Chairman CSIRO
 Professor Paul Clark, Deputy Vice-Chancellor, Victoria University of Technology
 Dr Peter Colman, Chief, CSIRO Division of Biomolecular Engineering
 Dr Wynford Conniek, Director, AMRL
 Professor Stella Crossley, Department of Psychology Monash University
 Dr Michael Dalling, Managing Director, Strategic Industry Research Foundation
 Mr Jerry de la Harpe, Howard Florey Institute, University of Melbourne
 Dr Michael Dixon, IBM Australia Limited
 Dr Paul Donaghue, Chief Scientist, ICI Australia Technology
 Dr Phil Dyson, Centre for Land Protection Research
 Mr Robert Edgar, Keith Turnbull Research Institute
 Professor R. J. Evans, Department of Electrical Engineering, University of Melbourne
 Ms Tania Ewing, *The Age*
 Mr Bob Foster, Councillor RSV
 Dr Russell Garnsworthy, CRA Ltd
 Mr Clyde Garrow, Councillor RSV
 Dr Roy Green, Acting Chief Executive, CSIRO
 Mr Alain Grossbard, Eastern Energy Ltd
 Dr Laurie Hammond, Chief Executive, Foundation for Research, Science & Technology, New Zealand
 Mrs Margaret Harris, Councillor RSV
 Mr Martin Harris, Managing Director, HBH Technology Industries Pty Ltd
 Mr John Haydon, General Manager, Technical Standards Branch, AUSTEL
 Professor Thomas Healy, School of Chemistry, University of Melbourne
 Dr Rod Hill, CSIRO Division of Mineral Resources
 Mr Trevor Hilton, KPMG House

- Mr Keith Hoffman, Chief Executive Officer,
Powernet
- Mr D. S. Humphreys
- Ms Jennifer Irving, Department of the Premier
& Cabinet
- Dr R. W. Jemison, UniMelb Ltd
- Dr Martin Jones, Transfield Defence Systems
- Professor David Kelly, Dean, Faculty of Science
& Technology, La Trobe University
- Mr Tony Kjar, Minenco Pty Ltd
- Dr Geoffrey Knights FTS
- Dr R. D. la Nauze, Chief, CSIRO Division
of Minerals
- Mr Peter Laver FTS, Corporate General
Manager, External Affairs, BHP
- Dr Phillip Law AO CBE
- Ms Wendy Lawler, Faculty of Science,
University of Melbourne
- Dr Bruce Livett, Department of Biochemistry &
Molecular Biology, University of Melbourne
- Professor Ian Lowe, Head, School of Science,
Griffith University
- Mr A. J. Mackenzie
- Dr Michael Manton, Councillor RSV
- Professor T. A. McMahon, Department of Civil
& Environmental Engineering., University of
Melbourne
- Mr Robert Meehan
- Dr Graham Mitchell, CSL Limited
- Dr Jens Mohr, Hoechst Australia Ltd
- Dr Bill Murphy, Councillor RSV
- Mr Jim Murray
- Dr Mike Murray, Chief, CSIRO Division of
Materials Science & Technology
- Dr Garth Newman, Fisheries Branch,
Department of Conservation & Natural
Resources
- Mr Pin Ng, Business Victoria, Department of
Business & Employment
- Ms Jane Niall, Department of the Premier &
Cabinet
- Professor Ian Nicholls, Department of Earth
Sciences, Monash University
- Sir Gustav Nossal AC FRS FAA, President,
Australian Academy of Science
- Mr O. T. O'Flynn
- Ms Maurcen O'Keefe, Faculty of Science,
University of Melbourne
- Associate Professor Richard O'Sullivan,
Australian Institute of Physics
- Dr Frank Papa, Department of Manufacturing
Systems Engineering, RMIT
- Sir Arvi Parbo AC FTS, President, Australian
Academy of Technological Sciences &
Engineering
- Dr Michael Pitman OBE FAA, Chief Scientist,
Department of Prime Minister & Cabinet
- Mr Brian Powell, RD, Montech Pty Ltd
- H. R. C. Pratt
- Professor Ian Rae, Deputy Vice-Chancellor,
Victoria University of Technology
- Dr Russell Reichelt, Australian Institute of
Marine Science
- Dr James Reid, Cobden Medical Centre
- Mr George Riffkin, Agriculture Victoria
- Dr Brian Robinson, Chairman, Environment
Protection Authority
- Professor Jarlath Ronayne, Vice-Chancellor's
Office, Victoria University of Technology
- Professor Hyam Rubinstein, Department of
Mathematics, University of Melbourne
- Associate Professor Gordon Sanson, Councillor
RSV
- Dr Peter Saunders
- Dr Brian Sawford, CSIRO Division of
Atmospheric Research
- Professor Bill Sawyer, Department of
Biochemistry & Molecular Biology, University
of Melbourne
- Dr Nalin Sharda, Department of Computer
Science, Victoria University of Technology
- Mr Jim Starkey, Executive Director, Australian
Institute of Petroleum
- Dr Raymond Steedman, Australian Institute of
Marine Science
- Ms Ros Stirling, *Australian R&D Review*
- Mr David Strong
- Mr G. S. Sutherland FIEAUST CPENG,
Institution of Engineers Australia
- Professor John Swan FAA
- Mr Philip Thomas, Vanan Australia Ltd
- Dr Brian Tucker
- Professor Daryl Tucker, Research Director,
Faculty of Science & Technology, Deakin
University
- Mr Peter Voylay, Department of Industry,
Science & Technology
- Dr R. G. Ward
- Professor Jim Warren, Councillor RSV
- Dr Graeme Watson, Department of Zoology,
University of Melbourne
- Mr Eric Webb
- Dr Norman Wettenhall
- Professor R. E. White, Department of
Agriculture, University of Melbourne
- Mr W. I. Whitton
- Mr Doug Williams
- Mr Roger Woodhouse